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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,891	01/15/2004	Gianpiero Santacatterina	IT20020057	4773
173 7590 02/19/2008 WHIRLPOOL PATENTS COMPANY - MD 0750 500 RENAISSANCE DRIVE - SUITE 102 ST. JOSEPH, MI 49085			EXAMINER NORTON, JENNIFER L	
			ART UNIT 2121	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

AK

<b>Office Action Summary</b>	Application No. 10/757,891	Applicant(s) SANTACATTERINA ET AL.	
	Examiner JENNIFER L. NORTON	Art Unit 2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 January 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/10/08</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The following is a **Final Office Action** in response to the Request for Continued Examination filed on 10 January 2008. Claims 1-14 are pending in this application.

#### ***Information Disclosure Statement***

2. The references cited in the Information Disclosure Statement received on 10 January 2008 have been considered by the Examiner.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, 6, 7, 9 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,572,438 (hereinafter Ehlers).

5. As per claim 1, Ehlers discloses a process for managing total power demand absorbed of one or more appliances, the process comprising the steps of:

assessing for each appliance an energy consumption profile (Fig. 4, element 48) of the one or more appliances corresponding to its setting (col. 3, lines 61-67, col. 5,

lines 45-49, col. 10, lines 17-20 and 25-31, col. 11, lines 30-32 and 53-59, col. 12, lines 21-59, col. 13, lines 64-67 and col. 14, lines 1-14);

summing the energy consumption profiles to determine if their sum leads to one or more peaks in power demand (col. 2, lines 58-65, and col. 3, lines 1-3 and 36-48, col. 5, lines 45-49, col. 13, lines 46-63, col. 14, lines 60-67, col. 15, lines 1-11, col. 23, lines 32-34 and col. 30, lines 5-8); and

providing one or more new energy consumption profiles to the one or more appliances for leveling the total power absorbed by the one or more appliances (col. 3, lines 36-48 and col. 25, lines 9-31).

6. As per claim 2, Ehlers discloses the appliances are controlled through on-off switching (col. 25, lines 9-16) and wherein the appliances are synchronized for organizing the on-off switching of single appliances or components in order to limit peaks of power demand (col. 2, lines 58-67, col. 3, lines 1-3 and 36-48 and col. 25, lines 19-31).

7. As per claim 4, Ehlers discloses at least one of the new energy consumption profiles is based on a delayed switching on one of the appliances or components thereof (col. 15, lines 39-46 and Fig. 4, element 34F).

8. As per claim 6, Ehlers discloses a system for managing and curtailing power absorbed of one or more appliances (col. 5, lines 45-49 and col. 8, lines 13-15 and col. 11, lines 30-32), each appliance having an user interface (Fig. 1, element 22) connected to a control unit for setting working parameters of the appliance (col. 4, lines 50-53), wherein the control unit is adapted to assess, for each appliance, an energy consumption profile corresponding to its setting (col. 3, lines 61-67, col. 5, lines 45-49, col. 10, lines 17-20 and 25-31, col. 11, lines 53-59, col. 12, lines 21-59, col. 13, lines 64-67 and col. 14, lines 1-14), the control unit being adapted to sum the energy consumption profiles in order to check if their sum leads to one or more peaks in the power demand and to provide one or more new energy consumption profiles in order to level or reduce the total power absorbed by the one or more appliances or components thereof (col. 2, lines 58-65, and col. 3, lines 1-3 and 36-48, col. 5, lines 45-49, col. 13, lines 46-63, col. 14, lines 60-67, col. 15, lines 1-11, col. 23, lines 32-34 and col. 30, lines 5-8).

9. As per claim 7, Ehlers discloses appliances controlled through on-off switching further comprises a control circuit (col. 25, lines 9-16) adapted to synchronize the appliances for organizing the on-off switching of single appliances in order to limit peaks of energy demand (col. 2, lines 58-67, col. 3, lines 1-3 and 36-48 and col. 25, lines 19-31, col. 30, lines 5-8).

10. As per claim 9, Ehlers discloses the control unit is adapted to provide one or more new energy consumption profiles based on a delayed switching on one of the appliances or components thereof (col. 15, lines 39-46 and Fig. 4, element 34F).

11. As per claim 11, Ehlers discloses leveling the total power absorbed comprises reducing the magnitude of the peaks of the total power absorbed (col. 30, lines 5-8).

12. As per claim 12, Ehlers discloses leveling the total power absorbed comprises maintaining the summed energy consumption at approximately an average energy consumption. (col. 29, lines 57-67 and col. 30, lines 1-13).

13. As per claim 13, Ehlers discloses reducing the total power absorbed by the one or more appliances or components comprises reducing the magnitude of the peaks of the total power absorbed (col. 30, lines 5-8).

14. As per claim 14, Ehlers discloses reducing the total power absorbed by the one or more appliances or components comprises maintaining the summed energy consumption at approximately an average energy consumption (col. 29, lines 57-67 and col. 30, lines 1-13).

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlers in view of U.S. Patent No. 4,612,619 (hereinafter Culp).

17. As per claim 3, Ehlers does not expressly teach the process wherein each on-off switching is based on a duty cycle and wherein a synchronizer puts in a sequence all the different duty cycles starting from the one related to the load with a higher power level, then organizes them inside a selected period of control, each duty cycle being placed in a precise position inside the period of control to avoid unnecessary simultaneous activation of loads.

Culp teaches to a process for leveling energy consumption of loads being controlled (Fig. 1, element 10) by a duty cycle routine, the loads having on and off times within a predetermined period of time for a plurality of loads (abstract). The load first turned off during the upcoming period or interval is the load having the largest off time kilowatt rating. The next load to be turned off is the load with the smallest off time kilowatt rating. The next load to be turned off is the load having the next largest off time kilowatt rating, the next load to be turned off is the load having the next

smallest off time kilowatt rating, and so on. The times between T1 and T2, T3 and T4, T5 and T6 and so on ending with the time between TN and the end of the period, are the gap times between corresponding adjacent off times. The gap times are substantially equal and are spread uniformly through the period (Fig. 3, col. 3, lines 4-16).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a process for leveling energy consumption of loads being controlled by a duty cycle routine, the loads having on and off times within a predetermined period of time for a plurality of loads. The load first turned off during the upcoming period or interval is the load having the largest off time kilowatt rating. The next load to be turned off is the load with the smallest off time kilowatt rating. The next load to be turned off is the load having the next largest off time kilowatt rating, the next load to be turned off is the load having the next smallest off time kilowatt rating, and so on. The times between T1 and T2, T3 and T4, T5 and T6 and so on ending with the time between TN and the end of the period, are the gap times between corresponding adjacent off times. The gap times are substantially equal and are spread uniformly through the period. It is desirable, during a load cycling routine, to spread the off times uniformly throughout the period to minimize the energy consumption at any given instant in time during the interval. Thus, it is not desirable to have all of the loads on at a given instant of time (col. 1, lines 56-61).



18. As per claim 8, Ehlers does not expressly teach the system wherein each on-off switching is based on a duty cycle and wherein a synchronizer is adapted to put in a sequence all the different duty cycles starting from the one related to the load with a higher power level, and it-is-adapted-to organize them inside the selected period of control, each duty cycle being placed in a precise position inside the period of control to avoid unnecessary simultaneous activation of loads.

Culp teaches to a system for leveling energy consumption of loads being controlled (Fig. 1, element 10) by a duty cycle routine, the loads having on and off times within a predetermined period of time for a plurality of loads (abstract). The load first turned off during the upcoming period or interval is the load having the largest off time kilowatt rating. The next load to be turned off is the load with the smallest off time kilowatt rating. The next load to be turned off is the load having the next largest off time kilowatt rating, the next load to be turned off is the load having the next smallest off time kilowatt rating, and so on. The times between T1 and T2, T3 and T4, T5 and T6 and so on ending with the time between TN and the end of the period, are the gap times between corresponding adjacent off times. The gap times are substantially equal and are spread uniformly through the period (Fig. 3, col. 3, lines 4-16).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a system for

leveling energy consumption of loads being controlled (Fig. 1, element 10) by a duty cycle routine, the loads having on and off times within a predetermined period of time for a plurality of loads (abstract). The load first turned off during the upcoming period or interval is the load having the largest off time kilowatt rating. The next load to be turned off is the load with the smallest off time kilowatt rating. The next load to be turned off is the load having the next largest off time kilowatt rating, the next load to be turned off is the load having the next smallest off time kilowatt rating, and so on. The times between T1 and T2, T3 and T4, T5 and T6 and so on ending with the time between TN and the end of the period, are the gap times between corresponding adjacent off times. The gap times are substantially equal and are spread uniformly through the period. It is desirable, during a load cycling routine, to spread the off times uniformly throughout the period to minimize the energy consumption at any given instant in time during the interval. Thus, it is not desirable to have all of the loads on at a given instant of time (col. 1, lines 56-61).

19. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlers in further in view of U.S Patent No.: 6,519,509 (referred to as Nierlich hereinafter).

20. As per claim 5, Ehlers does not expressly teach the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles is provided, such signal being adapted to be used by a control unit which supervises more

appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to a process of future energy consumption profiles (Fig. 3, element 48) that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed period (Fig. 3, element 50) and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a process of future energy consumption profiles that includes a level of kilowatt reduction, provides incremental and aggregate load forecast data over a prescribed period and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

21. As per claim 10, Ehlers does not expressly teach the control unit is adapted to provide, on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles, such signal being adapted to be used by a control

unit supervising more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to the future energy consumption profiles (Fig. 3, element 48) that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed period (Fig. 3, element 50) and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include future energy consumption profiles that includes a level of kilowatt reduction, provides incremental and aggregate load forecast data over a prescribed period and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

### ***Response to Arguments***

22. Applicant's arguments, see Remarks pgs. 10-26, filed 29 August 2006 with respect to claims 1, 2, 4, 6, 7, 9 and 11-14 under 35 U.S.C. 102(b) and claims 3, 5, 8

and 10 under 35 U.S.C. have been fully considered but they are not persuasive. The following is a reiteration of the Response to Arguments presented in the Examiner's Answer mailed on 09 November 2006:

**1. Rejection Under 35 U.S.C 102(b)**

Group. A Claims 1, 2, 4, 11 and 12:

a. In regards to Appellant's argument that that Ehlers does not disclose, "assessing for each appliance an energy consumption profile, which is the power absorbed by the appliance as a function of time during operation of the appliance, summing the energy consumption profiles of the appliances to determine if their sum leads to one or more peaks in power demand, and providing new energy consumption profiles to the appliances for leveling the total power absorbed by the one or more appliances" (see Brief, pg. 10, paragraph 2), the examiner respectfully disagrees.

As indicated in the Final Office Action, mailed on 31 March 2006, (see Response to Arguments, pg. 11, par. 21), Ehlers indeed discloses a process for managing an energy consumption profile as indicated in the above argument.

(col. 10, lines 16-20) "The CPEU\_PGM program is the main control program. It initiates load (current and power) monitoring, stores historical data, performs watt-

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hour meter reading, executes requested load turn-on/turn-off events and monitors communications from the utility company."

(col. 11, lines 53-59) "Before returning to a description of the CPEU\_ PGM modules, it should be understood that information about the loads at the customer premises and about the energy and power usage of those loads and of the premises as a whole is maintained in a data structure or structures indicated collectively at 38 (FIG. 4) and physically located in memory 18-B."

(col. 12, lines 21-59) "A second data structure 44 (FIG. 6), DEVICE, is arranged as a table having one entry per load device to be monitored or controlled. For each load, the data structure preferably maintains substantially the following information in separate fields: the power the device normally consumes when it is turned on, watts, 44A; the current the device normally consumes when it is turned on, amps, 44B; the voltage across the device when it is turned on, volts, 44C; the power factor for the device if it is a reactive load, power factor, 44D; a code indicating the kind of load the device is--e.g., resistive, inductive or fluorescent, load\_ type, 44E; the priority code for the device, to be used in load shedding operations (explained below), priority, 44F; a first address code, code\_number, 44G, which may be used as the "number" field of the device address for an X10 type of device; a second address code,

code\_letter, 44H, which may be used as the "letter" field of the device address for an X10 type of device; a third address code, cebus.\_hc, 44I, which may be used as the house code for a CEBus type of device; a fourth address code, cebus\_unit, 44J, which may be used as the unit number for a CEBus type of device; a description of the device (text) supplied by the customer, desc, 44K; a textual statement of the device location as supplied by the customer, location, 44L; the current on/off or other status of the device, status, 44M; **a count representing how long (cumulatively) the device has been turned on for the current day, current\_hours, 44N**; a count representing how long (cumulatively) the device has been turned on for the current month, mtd\_hours, 44O; a count representing how long the device was turned on during the prior month, last\_month, 44P; a count representing how many hours the device has been turned on for the year, to the current date, ytd\_hours, 44Q; and a flag to designate, for a CEBus device, whether it will give an ACK signal, cebus\_noack, 44R. Additional fields may be added as required and any of the foregoing fields not required in a particular embodiment (other than the illustrated embodiment) may be omitted, of course, the data structures shown in the drawing being illustrative only. For example, multiple instances of pairs of fields 44A and 44B may be provided for those devices which are capable of multiple consumption levels (e.g., multispeed motors)."

(col. 13, lines 64-67) and (col. 14, lines 1-14) "The DEVICE HISTORY table 54 (FIG. 9) (one per monitored device, which preferably is named in the table at 55A) stores, per measurement interval, a record containing data arranged in a predetermined pattern. To more graphically illustrate the data structure's configuration, it is shown diagrammatically, rather than using C code. Following the device name, device no. (55A), two consecutive records 54A and 54B are shown. Each record includes fields in which are recorded one or more of the following: the measured voltage, volts, 55B; in-phase current, current(in-phase), 55C; reactive current, current(reactive), 55D; **kwh consumed in the interval, kwh, 55E; kvah consumed in the interval, kvah, 55F**; and, for reactive loads, kvarh consumed in the interval, kvarh, 55G. If the address in the table for the record (i.e., the first entry thereof) correlates (via an indexing scheme, for example) with the date and time of the table entry, it is not necessary to record explicitly as part of the record the date and time, as they can be calculated."

Ehlers discloses "*summing the energy consumption profiles of the appliances to determine if their sum leads to one or more peaks in power demand*" in (col. 12, lines 21-59) "A second data structure 44 (FIG. 6), DEVICE, is arranged as a table having one entry per load device to be monitored or controlled. For each load, the data structure preferably maintains substantially the following information



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in separate fields: the power the device normally consumes when it is turned on, watts, 44A; the current the device normally consumes when it is turned on, amps, 44B; the voltage across the device when it is turned on, volts, 44C; the power factor for the device if it is a reactive load, power factor, 44D; a code indicating the kind of load the device is--e.g., resistive, inductive or fluorescent, load\_type, 44E; the priority code for the device, to be used in load shedding operations (explained below), priority, 44F; a first address code, code\_number, 44G, which may be used as the "number" field of the device address for an X10 type of device; a second address code, code\_letter, 44H, which may be used as the "letter" field of the device address for an X10 type of device; a third address code, cebus.\_hc, 44I, which may be used as the house code for a CEBus type of device; a fourth address code, cebus\_unit, 44J, which may be used as the unit number for a CEBus type of device; a description of the device (text) supplied by the customer, desc, 44K; a textual statement of the device location as supplied by the customer, location, 44L; the current on/off or other status of the device, status, 44M; **a count representing how long (cumulatively) the device has been turned on for the current day, current\_hours, 44N**; a count representing how long (cumulatively) the device has been turned on for the current month, mtd\_hours, 44O; a count representing how long the device was turned on during the prior month, last\_month, 44P; a count representing how many hours the device has been turned on for the year, to the current date, ytd\_hours, 44Q; and a flag to designate, for a CEBus device, whether it will give an ACK signal, cebus\_noack,

44R. Additional fields may be added as required and any of the foregoing fields not required in a particular embodiment (other than the illustrated embodiment) may be omitted, of course, the data structures shown in the drawing being illustrative only. For example, multiple instances of pairs of fields 44A and 44B may be provided for those devices which are capable of multiple consumption levels (e.g., multispeed motors)."

(col. 14, lines 60-67) and (col. 15, lines 1-11) "The first microcomputer 18 also can communicate with **the power company via a suitable communications interface 16 and associated channel to receive real-time energy rate broadcasts, load shedding requests and the like**, and to send to the utility company power outage reports, low voltage condition reports, customer usage reports and selected other data."

(col. 3, lines 36-48) "In view of the foregoing, it should be apparent that there exists a need for an automation system for monitoring energy (power) consumed not only by a residential or commercial utility customer as a whole, but also by specific loads operated by the customer. A need further exists for an automation system which is easily operated by a utility customer to permit the customer to control operation of such loads. Desirably, the system will permit the customer to program loads to function or not function in response to energy rate information supplied by the

power company and parameters supplied by the customer. In addition, there exists a need for a system that also permits the power company to control selectively such loads."

In addition, per the Merriam Webster's Dictionary of Synonyms, pg. 13, the term "summed" is a synonym of "accumulated". Ehlers discloses "a count representing how long (cumulatively) the device has been turned on for the current day, current\_hours, 44N", hence meeting the Appellant's claimed limitation. Further, the Examiner notes the preamble of claim 1 recites, "a process for managing total power absorbed of **one or more appliances**", which encompasses the summation of energy consumption profiles of a single or plurality of appliances.

Ehlers discloses *"providing new energy consumption profiles to the appliances for leveling the total power absorbed by the one or more appliances"* in (col. 25, lines 9-31) "To shed a load, all that is necessary is to broadcast **a command for a device** at a specific address to turn off or for all devices of a particular priority level or levels or type to turn off. Since the system possesses distributed intelligence in the form of a programmable microcontroller in each load control module, the controller can determine whether its associated load meets the criteria established in the **message** and, if so, turn off the load. To turn on all shed loads, a predetermined message can be broadcast over the network. Alternatively, **messages can be addressed by the**

**first microcomputer to specific devices to be turned off or to which power is to be restored.** As yet another alternative, the microcontroller can be programmed to restore power to its associated load after a predetermined time unless the shedding request is renewed. This latter approach is useful in reducing message traffic on the network. It also safeguards against failure to receive a power restoration message. In this manner, it can be assured, for example, that a refrigerator is not turned off for longer than a preset interval (assuming power is not lost). As yet another alternative, the message initiating the load shedding may contain a datum signifying the interval for which the load is to be shed or the time it should be automatically reconnected to the mains."

Hence, the new energy consumption profiles are disclosed in Ehlers as a "command/message" to the devices in Ehlers to provide load shedding which is means to reduce peak demand charges per the Asian Electronics Ltd.'s Glossary.

In summary, Ehlers discloses *"assessing for each appliance an energy consumption profile, which is the power absorbed by the appliance as a function of time during operation of the appliance, summing the energy consumption profiles of the appliances to determine if their sum leads to one or more peaks in power demand, and providing new energy consumption profiles to the appliances for leveling the total power absorbed by the one or more appliances"* by monitoring through measuring the

energy consumed at a given time or interval for a given load (i.e. appliance), energy consumption data is collectively maintained in a data structure for particular loads and the premise as a whole. Thus, the Appellant's energy consumption profile is the data stored in the data structure that is maintained for each load and the entire premise as disclosed in the Ehlers reference. The Examiner for matters of simplicity, has used the physical representation of Fig. 4, element 38 of Ehlers to represent "energy consumption profiles" (i.e. energy consumption data) which are disclosed within Fig. 4, element 38.

b. In regards to Appellant's argument that that Ehlers does not disclose, "an energy consumption profile in the system" (see Brief, pg. 11, paragraph 3 and Pg. 12, paragraph 3), the examiner respectfully disagrees.

The Examiner takes note that in the Final Office Action mailed on 31 March 2006, "the energy consumption profile" was indicated in error as element 48 in Fig. 4 in Ehlers and not as Fig. 4, element 38 in Ehlers. Hence, "the energy consumption profile" is represented in Ehlers, Fig. 4, element 38.

Furthermore, the Ehlers' reference discloses "*an energy consumption profile in the system*" in Fig. 4, element 38 ("data structures") and (col. 11, lines 53-59) "Before returning to a description of the CPEU\_ PGM modules, it should be understood that

information about the loads at the customer premises and about the energy and power usage of those loads and of the premises as a whole is maintained in a data structure or structures indicated collectively at 38 (FIG. 4) and physically located in memory 18-B."

c. In regards to Appellant's argument that that Ehlers does not disclose, *"energy consumption profiles as called for in the claims to determine which loads should be turned off or on, and when"* (see Brief, pg. 12, paragraph, 1), the examiner respectfully disagrees.

Ehlers discloses *"energy consumption profiles as called for in the claims to determine which loads should be turned off or on, and when"* in (col. 25, lines 9-31)

"To shed a load, all that is necessary is to broadcast a command for a device at a specific address to turn off or for all devices of a particular priority level or levels or type to turn off. Since the system possesses distributed intelligence in the form of a programmable microcontroller in each load control module, **the controller can determine whether its associated load meets the criteria established in the message and, if so, turn off the load.** To turn on all shed loads, a predetermined message can be broadcast over the network. Alternatively, **messages can be addressed by the first microcomputer to specific devices to be turned off or to which power is to be restored.** As yet another alternative, the microcontroller

can be programmed to restore power to its associated load after a predetermined time unless the shedding request is renewed. This latter approach is useful in reducing message traffic on the network. ... As yet another alternative, **the message initiating the load shedding may contain a datum signifying the interval for which the load is to be shed or the time it should be automatically reconnected to the mains."**

d. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "the summing of energy consumption profiles, which are instantaneous energy consumptions at discrete times" (see Brief pg. 14, paragraph 2)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Furthermore, Ehlers discloses (col. 15, lines 31-35) "The Poll and Store module 34D polls the watt-hour meter to get a current reading of demand and accumulated energy consumption since the last prior poll; it also polls monitored devices and stores the results." Hence, "the current reading of demand" of the Poll and Store module is an energy consumption measurement at a discrete time.

e. In regards to Appellant's argument that that Ehlers does not disclose, "forward looking" energy consumption (see Brief, pg. 14, paragraph 2), the examiner recognizes the Appellant has not accounted for the combination of Ehlers and Nierlich under 35 U.S.C 103(a) for this limitation as set forth in the Final Office Action, mailed on 31 March 2006, par. 18-20, as it relates to claims 5 and 10 and is reiterated below:

18. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlers in view of U.S Patent No.: 6,519,509 (referred to as Nierlich hereinafter).

19. As per claim 5, Ehlers does not expressly teach the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles is provided, such signal being adapted to be used by a control unit which supervises more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to a process of future energy consumption profiles (Fig. 3, element 48) that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed period (Fig. 3, element 50) and is fully



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compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a process on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles is provided, such signal being adapted to be used by a control unit which supervises more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

20. As per claim 10, Ehlers does not expressly teach the control unit is adapted to provide, on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles, such signal being adapted to be used by a control unit supervising more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to the future energy consumption profiles (Fig. 3, element 48) that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed period (Fig. 3, element 50) and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a control unit adapted to provide, on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles, such signal being adapted to be used by a control unit supervising more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

Group B. Claims 6, 7, 9, 13 and 14:

f. In regards to the Appellant's argument that Ehlers fails to disclose

"assessing for each appliance an energy consumption profile, summing the energy consumption profiles of the appliances to determine if their sum leads to one or more peaks in power demand, or providing new energy consumption profiles to the appliances for leveling the total power absorbed by the appliances" (see Brief pg. 16, paragraphs 3-5), the Examiner respectfully disagrees.

The arguments presented in Group B are a reiteration of those of Group A, hence the Examiner refers to the above response of Group A and the argument of Group B as per claims 6, 7, 9, 13 and 14 herein as addressed.

B. Claims 3 and 8 are not obvious over U.S. Patent No. 5,572,438 to Ehlers et al. in view of U.S. Patent No. 4,612,619 to Culp.

g. The Examiner recognizes the Appellant has reiterated the limitations of claims 3 and 8, and has not presented arguments in this section (see Brief, pg. 17 paragraphs 1-3 and pg. 18, paragraphs 1-2). Therefore, the arguments set forth above are equally applicable here.

1. The combination of Ehlers '438 and Culp '619 is improper, which removes the basis for the obviousness rejection.

h. In response to applicant's argument that there is no suggestion to

combine the references (see Brief, pg. 18, paragraph 3 and pg. 20, paragraph 1), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as indicated in the Final Office Action, mailed on 31 March 2006, Culp discloses "It is desirable, during a load cycling routine, to spread the off times uniformly throughout the period to minimize the energy consumption at any given instant in time during the interval. Thus, it is not desirable to have all of the loads on at a given instant of time." (col. 1, lines 56-61).

i. In regards to the Appellant's argument that "the two systems (Ehlers and Culp) are incompatible (see Brief, pg. 20, paragraph 2), the examiner respectfully disagrees.

Ehlers discloses in (col. 25, lines 9-31) "To shed a load, all that is necessary is to broadcast a command for a device at a specific address to turn off or for all devices of a particular priority level or levels or type to turn off. Since the system possesses distributed intelligence in the form of a programmable microcontroller in each load control module, the controller can determine whether its associated load meets the

criteria established in the message and, if so, turn off the load. To turn on all shed loads, a predetermined message can be broadcast over the network. Alternatively, messages can be addressed by the first microcomputer to specific devices to be turned off or to which power is to be restored. As yet another alternative, the microcontroller can be programmed to restore power to its associated load after a predetermined time unless the shedding request is renewed. This latter approach is useful in reducing message traffic on the network. It also safeguards against failure to receive a power restoration message. In this manner, it can be assured, for example, that a refrigerator is not turned off for longer than a preset interval (assuming power is not lost). As yet another alternative, the message initiating the load shedding may contain a datum signifying the interval for which the load is to be shed or the time it should be automatically reconnected to the mains."

In summary, Ehlers uses a pre-established criteria to turn on and off loads, which does not excluded the pre-established criteria from incorporating the use of on-off switching based on a duty cycle, wherein the loads are turned on-off based on the magnitude of their power consumption. Appellant has not offered any evidence to establish that the references are not combinable and Culp clearly provides a reason for the combination. Thus, claims 3 and 8 are obvious over Ehlers and Culp.

j. In response to applicant's argument that the examiner's conclusion

of obviousness is based upon improper hindsight reasoning (see Brief, pg. 21, paragraph 3), it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this regard, the motivation for the combination comes from the references and thus there is no impermissible hindsight.

2. The combination of Ehlers '438 and Culp '619 does not reach the claimed invention.

Group C. Claim 3

k. In regards to the Appellant's argument that Ehlers nor Culp discloses "the establishment of power consumption profiles for the power consuming devices, the summing of such profiles, or the generation of new energy consumption profiles for leveling the total power consuming devices" (see Brief, pgs. 21-22, paragraph, 5), the Examiner respectfully disagrees.

The arguments presented in Group C are a reiteration of those of Group A, hence the Examiner refers to the above response of Group A and the argument of Group C as per claim 3 herein as addressed.

Group D. Claim 8

I. In regards to the Appellant's argument that Ehlers nor Culp discloses "the establishment of power consumption profiles for the power consuming devices, the summing of such profiles, or the generation of new energy consumption profiles for leveling the total power consuming devices" (see Brief, pg. 22, paragraph 2), the Examiner respectfully disagrees.

The arguments presented in Group D are a reiteration of those of Group A, hence the Examiner refers to the above response of Group A and the argument of Group D as per claim 8 herein as addressed.

C. Claims 5 and 10 are not obvious over U.S. Patent No. 5,572,438 to Ehlers et al. in view of U.S. Patent No. 6,519,509 et al.

m. The Examiner recognizes the Appellant has reiterated the limitations of claims 5 and 10, and has not presented arguments in this section (see Brief, pg. 23, paragraphs 1-4 and pg. 24, paragraph 1). Therefore, the arguments set forth above are equally applicable here.

1. The combination of Ehlers '438 and Nierlich '509 is improper, which removes the basis for the obviousness rejection.

n. In response to applicant's argument that there is no suggestion to

combine the references (see Brief, pg. 24 paragraph 3), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as indicated in the Final Office Action, mailed on 31 March 2006, Nierlich discloses "This feature is useful for anticipating demand peaks and curtailment scheduling." (col. 8, lines 52-53).

o. In regards to the Appellant's argument, "there would be no motivation to consider modifying the system of Ehlers '438 with a system that simply does the same, i.e. the system of Nierlich '509" (see Brief, pg. 24, paragraph 3), the examiner respectfully disagrees.

This argument in itself supports and defends the Examiner's argument that there is motivation to combine, not only because motivation to combine is disclosed in Nierlich, but since the Appellant admits by his own argument that the two systems of Ehlers and Nierlich perform the same functions. It may be that Appellant is arguing that all of Nierlich must be bodily incorporated into



Ehlers, this is not the rejection that was made. However, even if Ehlers were bodily incorporated into Nierlich, the resultant device would be operable and the functionality of each invention is complementary.

For convenience, col. 8, lines 35-52 of Nierlich is recited below:

Preferably, the load reduction records 48 also includes attributes such as (1) the level of kilowatt reduction; (2) the trigger price at which a decision to displace a load, activate a generator, or contact a control system occurs; (3) the number of days, years, and hours within a day a load can be switched off-line, a generator can be activated, or a controller contacted; (4) the notification lead time needed before a curtailment event can occur; and (5) whether the load, generator, or control system is manually or automatically activated or deactivated.

Preferably, the load-forecast records 50 provide incremental and aggregate load forecast data over a prescribed period that include data that can be automatically imported into the CCC 26 and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis. This feature is useful for anticipating demand peaks and curtailment scheduling.

p. In response to applicant's argument that the examiner's conclusion of

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obviousness is based upon improper hindsight reasoning (see Brief, pg. 25, paragraph 2), it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this regard, the motivation for the combination comes from the references and thus there is no impermissible hindsight.

2. The combination of Ehlers '438 and Nierlich '509 does not reach the claimed invention.

Group D. Claim 5

q. In regards to the Appellant's argument that Ehlers nor Nierlich disclose "the summing of power consumption profiles for the power consuming devices, or the generation of new energy consumption profiles for leveling the total power consuming devices" (see Brief, pg. 25, paragraph 4), the Examiner respectfully disagrees.

The arguments presented in Group D are a reiteration of those of Group A, hence the Examiner refers to the above response of Group A and the argument of Group D as per claim 5 herein as addressed.

Group E. Claim 10

r. In regards to the Appellant's argument that Ehlers nor Nierlich disclose "the summing of power consumption profiles for the power consuming devices, or the generation of new energy consumption profiles for leveling the total power consuming devices" (see Brief, pg. 26, paragraph 2) the Examiner respectfully disagrees.

The arguments presented in Group E are a reiteration of those of Group A, hence the Examiner refers to the above response of Group A and the argument of Group E as per claim 10 herein as addressed.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art with respect to power management system.

U.S. Patent No. 7,280,893 discloses a business management method with interaction between an electrical energy supplier and a plurality of customer energy consumers includes the consumers providing respective electricity load profiles to the energy supplier.

U.S. Patent No. 7,324,876 discloses a power management system and associated method includes provision of local wireless energy control units at remote sites for controlling power delivery to customer loads, and a central station with a wireless transmitter for broadcasting commands to the wireless energy control units.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

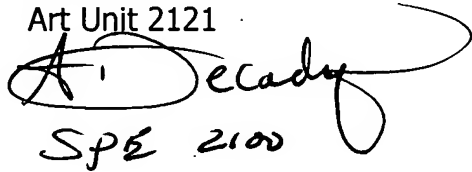
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER L. NORTON whose telephone number is (571)272-3694. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on 571-272-3997. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Albert DeCady  
Examiner  
Art Unit 2121



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